00-137

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September 22, 2000

Mr. Dale Hatfield
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, SW, Room 7-A-340
Washington, DC 20554

Re: **Final Service Disruption Report**

Dear Mr. Hatfield:

Pursuant to the requirements established in the Report and Order in CC Docket No. 91-273 (Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions), **SOUTHWESTERN BELL TELEPHONE COMPANY** submits the attached **Final** Service Disruption Report associated with a service disruption in **Abilene, Snyder, Sweetwater and Colorado City, Texas** on **August 24, 2000**.

An Initial Service Disruption Report was faxed to the FCC's Monitoring Watch Officer on that date.

Please stamp and return the provided copy to confirm your receipt. Please contact me if you have questions regarding this service disruption.

Sincerely,

Jonathan J. Boynton

Enclosures

CC: Bob Kimball
Kent Nilsson

Southwestern Bell

A member of the SBC global network

Retention Period: 6 Years

FCC SERVICE DISRUPTION REPORT

Type of Report: ☐ Initial Report ☐ Update ☒ Final

Occurred: Date: 08/24/2000 Time: 14:18 CDT

Ended: Date: 08/24/2000 Time: 18:05 CDT

Duration (in minutes): 227 minutes

☒ 50,000 or More Customers
☐ 30,000 - 49,999 Customers
☐ Fire incident ≥ 1,000 lines

Special Offices/Facilities
☒ 911
☐ Major/Medium Airport
☐ NCS Request

Geographic Area Affected: Abilene, Snyder, Sweetwater and Colorado City, Texas

Estimated Customers Affected: 60,684

Type(s) of Services Affected:
☐ Local (Intraoffice) ☐ IntraLATA ☐ InterLATA ☐ 800
☐ LIDB ☐ Operator Services ☐ Interexchange ☐ Switched Access (interoffice)
☐ Cellular ☐ International ☒ E911/911 ☐ FAA ☐ All

Estimated Blocked Calls: 3,127

- **Apparent or Known Cause of the Outage:** On August 24, 2000 at 14:18 CDT, a fiber cut isolated Abilene Owen remote switches, causing 5 optical remote modules (ORMs) to fail. The Abilene Owen 5ESS switch serves as the host for these remotes as well as being the 911 tandem for the Abilene LATA. Initial efforts were directed at verifying 911 capabilities in the isolated remotes. The first indication of 911 problems came at 15:01 CDT, when test calls determined that 911 calls were not completing to the Abilene Police Department's Public Safety Answering Point (PSAP) in Abilene, Texas.

With the remotes down, normal procedures for performing 911 reroutes were unsuccessful. The 5ESS switch would not perform required recent changes, due to inability to update the isolated remotes. A temporary translation change was made which placed isolated switch modules in special growth state in order to allow recent changes to be entered. However, normal reroute procedures were still unsuccessful.

The unique nature of this problem required extraordinary measures to be taken. The regional technical support group developed a temporary fix in which call-forwarding was used to divert 911 calls to the Abilene Police Department's non-emergency number. This was completed at 18:05 CDT and 911 calls were then able to complete at the Abilene Police Department.

At 21:24 CDT, the fiber cable was repaired, remotes restored and the special growth state was removed, giving access to the ORMs. Call-forwarding was removed and 911 traffic restored to the dedicated PSAP trunk group.

Further investigation revealed that the hundreds group routing for 911 was incorrectly assigned to one of the isolated ORMs (SM 22). With translations residing in an isolated switch module, the office was unable to complete 911 calls due to the unavailability of routing information. Once this problem was clearly identified, the hundreds group routing for 911 was moved from SM 22 (remote switch module) to SM 1 (host switch module), insuring that a cut cable will not result in another 911 outage of this type.

The origin of this problem was traced back to November 1999, when the 911 tandem was moved from the Abilene Orchard 1AESS to the Abilene Owen 5ESS. Translations for the 5ESS switch were established allowing dynamic allocation of translations throughout the switch. The office option for hundreds group assignment is made on 5ESS form 5115 (recent change view 4.14) on field "RM RTG RSTRCT". This option is set to "Y" to restrict assignments from the remotes. In Abilene 5ESS, the option was incorrectly set to "N", which caused an automated random assignment of the hundreds group routing to SM 22, without our input.

DIRECT CAUSE: Cable Damage

ROOT CAUSE: Procedural – System Vendor: Documentation procedures unavailable, unclear, incomplete.

Name and Type of Equipment Involved: Lucent Technologies 5ESS switch

Specific Part of Network Involved: E911 Tandem

Methods used to Restore Service: Call-forwarding was used to temporarily direct 911 calls to the Abilene Police Department until the cable was repaired and calls were stable.

Steps Taken to Prevent Recurrence:

1. An Electronics System Assitance Center (ESAC) Flash will be issued on E911 reroute failures when dynamic allocation is allowed in remote switch modules.
2. Check and correct the translations for all Southwestern Bell 5ESS 911 tandem switches to insure no remote switches contain 911 routing information.
3. The E911 Tandem Translation Method (TMP 98-09-001) will be updated to include a warning and the appropriate setting for the office option item "RM RTG RESTRCT". A NAP will be issued.
4. Lucent Technologies will include a warning regarding the impact of this option setting to E911 services. Warnings will be posted to document 235-080-100 and the Translation Guide (TG) as well as other Lucent documents dealing with setting of this option.

Applicable Best Practices: Southwestern Bell reviewed the Network Reliability Council Focus Group IV: Essential Communications During Emergencies Team Report dated January

12, 1996 and evaluated all recommendations and best practices. Based on the Root Cause analysis the most appropriate focus area is:

Reference: 6. Essential Services Best Practice Recommendations

- Recommendation 6.6: Network Management Centers (NMCs) remotely monitor and manage the 911 network components. The NMCs should use network controls where technically feasible to quickly restore 911 service and provide priority repair during network failure events.

Best Practices Used: Southwestern Bell observes those practices that are consistent with providing outstanding customer service.

Analysis of Effectiveness of Best Practices: Technicians directed their initial efforts towards verifying 911 capabilities. Once determined that 911 calls were not completing, normal reroute procedures were followed, but were unsuccessful. Technicians developed a unique temporary fix in which call-forwarding was used to send 911 traffic to the Abilene Police Department Non-Emergency Number until the fiber cable was repaired and a further analysis of the route cause could be completed and a permanent solution could be implemented.

Prepared by: Denise Buschfort
Telephone: 210-886-4586
Date submitted: 09/22/2000
Time: 16:20 CDT

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Southwestern Bell

A member of the SBC global network

Retention Period: 6 Years

FCC SERVICE DISRUPTION REPORT

Type of Report: ☒ Initial Report ☐ Update ☐ Final

Occurred: Date: 08/24/2000 Time: 15:01 CST

Ended: Date: 08/24/2000 Time: 18:05 CST

Duration (in minutes): 184 minutes

☒ 50,000 or More Customers
☐ 30,000 - 49,999 Customers
☐ Fire incident ≥ 1,000 lines

Special Offices/Facilities
☒ 911
☐ Major/Medium Airport
☐ NCS Request

Geographic Area Affected: Abilene, Texas

Estimated Customers Affected: 60,684

The following PSAPs were isolated:
Colorado City, TX serving 3,740 customers
Sweetwater, TX serving 8,177 customers
Snyder, TX serving 9,081 customers
Abilene-Orchard, TX serving 39,686 customers

Type(s) of Services Affected:
☐ Local (Intraoffice) ☐ IntraLATA ☐ InterLATA ☐ 800
☐ LIDB ☐ Operator Services ☐ Interexchange ☐ Switched Access (interoffice)
☐ Cellular ☐ International ☒ E911/911 ☐ FAA ☐ All

Estimated Blocked Calls: 2,189

Apparent or Known Cause of the Outage: On August 24, 2000, at 15:01 CST a failure in the Abilene-Owen, TX tandem occurred, causing the Colorado City, Sweetwater, Snyder and Abilene-Orchard PSAPs to become isolated from the 911 network. An initial attempt to reroute 911 traffic was unable to be completed successfully, for reasons unknown at this time. Routing translations were then changed which directed all traffic to a single answering point in Abilene, ending the isolation.

Name and Type of Equipment Involved: Lucent 5ESS Tandem

Specific Part of Network Involved: E-911 Tandem

Methods used to Restore Service: Implemented 911 contingency plan in which customers dialing 911 were routed to the Abilene-Orchard PSAP, where DPS personnel then forwarded them to the appropriate PSAP in their area.

Prepared by: Denise Buschfort
Telephone: 210-886-4586
Date submitted: 08/24/2000
Time: 19:25 CST